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09/651,717	08/31/2000	Krishna Balachandran	13-18-18-40-1	4500

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Docket Administrator Room 3C 512
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EXAMINER

PHILPOTT, JUSTIN M

ART UNIT

PAPER NUMBER

2665

DATE MAILED: 07/20/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/651,717

Applicant(s)

BALACHANDRAN ET AL.

Examiner

Justin M Philpott

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: “anothe” (page 3, line 12) should be changed to “another”, and “present..” (page 4, line 8) should be changed to “present.”. Furthermore, it does not appear that description of Figures 3 and 4 are included in the detailed description. Applicant is requested to include reference to Figures 3 and 4 in the detailed description, or to indicate where in the specification Figures 3 and 4 are described if Applicant believes reference to the figures has already been provided in the specification as originally filed. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, claims 1 and 29 recite the phrase “time-multiplexing into a plurality of frames” (lines 9-10) which is unclear as to what is time-multiplexed. Applicant may overcome this rejection by amending the claims to recite, “time-multiplexing the sub-bands into a plurality of frames”.

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Claims 2-28 are rejected for the same reason discussed above regarding claim 1 due to their dependencies upon the rejected base claim, claim 1. Applicant may overcome this rejection by amending claim 1 as suggested above.

Furthermore, claim 14 recites the phrase "each communication session" in claim 1. There is insufficient antecedent basis for this limitation in the claim.

Still further, claims 13, 15 and 16 recite the phrase a "communication session", and it is unclear as to what comprises a communication session. Applicant is required to specify in the claims what is included in a communication session. Claims 17-20 depend upon claims 15 and 16 and are therefore also rejected for the same reason discussed above regarding claims 15 and 16.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 4 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,812,522 to Lee et al.

Regarding claims 1 and 29, Lee teaches a system comprising a carrier generator (e.g., at control center 12, see FIG. 1) generating a plurality of carriers within each of two bands (e.g., see col. 3, lines 1-12 and 25-30), each of the carriers being in a spaced relationship to the other carriers (e.g., spread spectrum pair-band channels, see col. 3, lines 1-12) such that each band is

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sub-divided into a plurality of sub-bands (e.g., sub-channels, see col. 3, line 63-64) that are equal in number to the plurality of carriers and each of the plurality of sub-bands having a respective carrier of the plurality of carriers (e.g., each carrier modulated with PN code corresponding to PN code of the sub-channel, see col. 3, line 41 – col. 4, line 8), a time multiplexer (e.g., TDM multiplexer 32, see FIG. 2) dividing each of the sub-bands by time-multiplexing into a plurality of frames, the time multiplexer also dividing each frame into N time-slots (e.g., see col. 4, lines 9-17), and a switching device (e.g., TDD multiplexer 48) assigning a series of time-slots that occur periodically, every N time-slots, once per frame, (e.g., at $1/T$ separations, see col. 3, lines 63-64) to form channels for communication between a central station (e.g., control center 12) and one or more mobile stations (e.g., mobile units 16).

Regarding claim 3, Lee teaches duplex communication is carried out by assigning one or more channel pairs (e.g., see col. 3, lines 6-9), wherein the channel pairs are inherently uplink and downlink channels.

Regarding claim 4, Lee teaches the carriers have a frequency hopping pattern (e.g., see col. 4, lines 27-28).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 2, 5-8, 13 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of U.S. Patent No. 6,714,514 to Espax et al.

Regarding claims 2, 5 and 8, Lee teaches the system discussed above regarding claim 1, however, may not specifically disclose that communications are unidirectional. Espax also teaches a frequency division duplex system, and further, teaches a method for improving capacity in the system (e.g., see col. 1, line 15 – col. 2, line 20). Specifically, Espax teaches communications are unidirectional (e.g., see col. 8, line 60 – col. 9, line 19). As discussed above, the teachings of Espax provide improved capacity in the system (e.g., see col. 1, line 15 – col. 2, line 20). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the FDD system teachings of Espax to the FDD system of Lee in order to provide improved capacity in the system.

Regarding claims 6 and 7, Examiner takes official notice that an FDD system such as that of Lee in view of Espax implicitly comprises control channel messages transmitted in one or more bursts, and therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to transmit the control messages in the system of Lee in view of Espax in one or more bursts since such transmission is well known in the art of FDD transmission.

Regarding claim 13, Espax teaches each station may have one or more communication sessions assigned with independent throughput, error, and delay characteristics (e.g., see col. 4, line 55 – col. 5, line 28). As discussed above, the teachings of Espax provide improved capacity in the system (e.g., see col. 1, line 15 – col. 2, line 20). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the FDD system teachings of Espax to the FDD system of Lee in order to provide improved capacity in the system.

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Regarding claim 24, Espax teaches continuity of periodic control channels across speech talkspurt and silence periods for conversational voice also carry quality feedback information (e.g., see col. 4, lines 38-55). As discussed above, the teachings of Espax provide improved capacity in the system (e.g., see col. 1, line 15 – col. 2, line 20). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the FDD system teachings of Espax to the FDD system of Lee in order to provide improved capacity in the system.

Regarding claims 25 and 26, Espax teaches the periodic control channels further carry signal measurement reports (e.g., weights, delays, see col. 2, line 66 – col. 3, line 7) and noise information (e.g., error rate, see col. 5, lines 5-9). As discussed above, the teachings of Espax provide improved capacity in the system (e.g., see col. 1, line 15 – col. 2, line 20). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the FDD system teachings of Espax to the FDD system of Lee in order to provide improved capacity in the system.

8. Claims 9-12, 14-20, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of U.S. Patent No. 6,154,661 to Goldberg.

Regarding claims 9-12, Lee teaches the system discussed above regarding claim 1, however, may not specifically disclose control messages are transmitted only to the station to which the channels are to be assigned. Goldberg also teaches a FDD communication system, and specifically teaches control messages are transmitted only to the station to which the channels are to be assigned (e.g., see col. 6, line 66 – col. 7, line 53, and specifically col. 7, lines

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4-5 and 14-25 regarding each intended subscriber unit with a known location). Further, Goldberg teaches the assignment of control channels and carriers are done through control messages (e.g., see col. 23-63). Further, Goldberg teaches the control channels may be utilized as a downlink traffic channel as well as an uplink traffic channel (e.g., see col. 2, lines 59-67). The teachings of Goldberg provide means for accommodating single users per conventional channel as well as multiple users per conventional channel while maintaining a low power (e.g., see col. 5, lines 59-67). Thus, at the time of the invention it would have been obvious to apply the teachings of Goldberg to the system of Lee in order to accommodate single users per conventional channel as well as multiple users per conventional channel while maintaining a low power.

Regarding claim 14, Goldberg teaches a communication session may be associated with one of a plurality of different protocols (e.g., see col. 9, lines 34-49). As discussed above, the teachings of Goldberg provide means for accommodating single users per conventional channel as well as multiple users per conventional channel while maintaining a low power (e.g., see col. 5, lines 59-67). Thus, at the time of the invention it would have been obvious to apply the teachings of Goldberg to the system of Lee in order to accommodate single users per conventional channel as well as multiple users per conventional channel while maintaining a low power.

Regarding claims 15 and 16, Goldberg teaches a communication session is assigned resources only in the direction of data transfer (e.g., see col. 10, lines 33-36) and a communication session is assigned resources only when data is to be transmitted (e.g., see col. 10, lines 37-45). As discussed above, the teachings of Goldberg provide means for

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accommodating single users per conventional channel as well as multiple users per conventional channel while maintaining a low power (e.g., see col. 5, lines 59-67). Thus, at the time of the invention it would have been obvious to apply the teachings of Goldberg to the system of Lee in order to accommodate single users per conventional channel as well as multiple users per conventional channel while maintaining a low power.

Regarding claims 17 and 19, Goldberg teaches slow associated control channels are utilized (e.g., see col. 10, lines 57-63), and further, Goldberg teaches the control channels may be utilized as a downlink traffic channel as well as an uplink traffic channel (e.g., see col. 2, lines 59-67). As discussed above, the teachings of Goldberg provide means for accommodating single users per conventional channel as well as multiple users per conventional channel while maintaining a low power (e.g., see col. 5, lines 59-67). Thus, at the time of the invention it would have been obvious to apply the teachings of Goldberg to the system of Lee in order to accommodate single users per conventional channel as well as multiple users per conventional channel while maintaining a low power.

Regarding claims 18 and 20, Goldberg teaches a periodic reserved control channel is assigned to provide the same function as the slow associated control channel during periods when there is no traffic channel assigned (e.g., see col. 10, lines 52-56), and further, Goldberg teaches the control channels may be utilized as a downlink traffic channel as well as an uplink traffic channel (e.g., see col. 2, lines 59-67). As discussed above, the teachings of Goldberg provide means for accommodating single users per conventional channel as well as multiple users per conventional channel while maintaining a low power (e.g., see col. 5, lines 59-67). Thus, at the time of the invention it would have been obvious to apply the teachings of Goldberg

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to the system of Lee in order to accommodate single users per conventional channel as well as multiple users per conventional channel while maintaining a low power.

Regarding claims 27 and 28, Goldberg teaches several combination of channels are used (e.g., see col. 11, line 65 – col. 12, line 10). As discussed above, the teachings of Goldberg provide means for accommodating single users per conventional channel as well as multiple users per conventional channel while maintaining a low power (e.g., see col. 5, lines 59-67). Thus, at the time of the invention it would have been obvious to apply the teachings of Goldberg to the system of Lee in order to accommodate single users per conventional channel as well as multiple users per conventional channel while maintaining a low power. While Goldberg may not specifically disclose uplink and downlink bands are of unequal size or the number of carriers are different between uplink and downlink, it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on Appellant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to have an unequal number of carriers or bands between uplink and downlink since it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value.

9. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of U.S. Patent No. 6,729,929 to Sayers et al.

Regarding claim 21, Lee teaches the system discussed above regarding claim 1, however, may not specifically disclose a fast associated control channel that has a higher priority and may pre-empt traffic on the traffic channel. Sayers also teaches an FDD communication system, and specifically, teaches a fast associated control channel that has a higher priority and may pre-empt traffic on the traffic channel (e.g., see col. 3, lines 44-58). The teachings of Sayers provide the ability for the system to operate in both public and private networks with high private network data rates (e.g., see col. 8, lines 21-44). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Sayers to the system of Lee in order to provide increased functionality by operating in both public and private networks with high private network data rates.

Regarding claims 22 and 23, Lee in view of Sayers teach the system discussed above regarding claim 21, and further, Examiner takes official notice that an FDD system such as that of Lee in view of Sayers implicitly comprises control channel messages transmitted in one or more bursts, and therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to transmit the control messages in the system of Lee in view of Sayers in one or more bursts since such transmission is well known in the art of FDD transmission.

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Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 5,732,076 to Ketseoglou et al. discloses a system supporting multiple TDD communication protocols, U.S. Patent No. 5,933,421 to Alamouti et al. discloses a method for FDD communications, and U.S. Patent No. 6,452,914 to Niemela discloses a mobile GSM system.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin M Philpott whose telephone number is 703.305.7357. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on 703.308.6602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Justin M Philpott



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